

**What Is Claimed Is:**

- 1           1.       A method for using query signatures to provide security for a  
2 database, comprising:  
3           receiving a query at the database;  
4           parsing the query to determine a signature for the query, wherein the  
5 signature specifies a structure based on operations for the query and is  
6 independent of the value of literals in the query;  
7           determining if the signature is located in a signature cache, which contains  
8 signatures for valid queries; and  
9           if so, processing the query.
- 1           2.       The method of claim 1, wherein if the signature is not in the  
2 signature cache, the method further comprises triggering a mismatch alert.
- 1           3.       The method of claim 2, wherein the mismatch alert throws an  
2 error.
- 1           4.       The method of claim 2, wherein the mismatch alert is sent to a  
2 database administrator and the query is processed.
- 1           5.       The method of claim 2, wherein the mismatch alert is sent to a  
2 requesting application, thereby allowing the requesting application to take action.

1           6.       The method of claim 1, wherein the signature cache is initialized  
2 by recording signatures of valid transactions during a system initialization  
3 operation.

1           7.       The method of claim 1, wherein if the signature generates a  
2 mismatch alert and if the query is a valid query, the method further comprises  
3 allowing a database administrator to add the signature to the signature cache.

1           8.       A computer-readable storage medium storing instructions that  
2 when executed by a computer cause the computer to perform a method for using  
3 query signatures to provide security for a database, the method comprising:  
4           receiving a query at the database;  
5           parsing the query to determine a signature for the query, wherein the  
6 signature specifies a structure based on operations for the query and is  
7 independent of the value of literals in the query;  
8           determining if the signature is located in a signature cache, which contains  
9 signatures for valid queries; and  
10          if so, processing the query.

1           9.       The computer-readable storage medium of claim 8, wherein if the  
2 signature is not in the signature cache, the method further comprises triggering a  
3 mismatch alert.

1           10.      The computer-readable storage medium of claim 9, wherein the  
2 mismatch alert throws an error.

1           11.    The computer-readable storage medium of claim 9, wherein the  
2 mismatch alert is sent to a database administrator and the query is processed.

1           12.    The computer-readable storage medium of claim 9, wherein the  
2 mismatch alert is sent to a requesting application, thereby allowing the requesting  
3 application to take action.

1           13.    The computer-readable storage medium of claim 8, wherein the  
2 signature cache is initialized by recording signatures of valid transactions during a  
3 system initialization operation.

1           14.    The computer-readable storage medium of claim 8, wherein if the  
2 signature generates a mismatch alert and if the query is a valid query, the method  
3 further comprises allowing a database administrator to add the signature to the  
4 signature cache.

1           15.    An apparatus for using query signatures to provide security for a  
2 database, comprising:  
3           a receiving mechanism configured to receive a query at the database;  
4           a parsing mechanism configured to parse the query to determine a  
5 signature for the query, wherein the signature specifies a structure based on  
6 operations for the query and is independent of the value of literals in the query;  
7           a matching mechanism configured to determine if the signature is located  
8 in a signature cache, which contains signatures for valid queries; and  
9           a processing mechanism configured to process the query.

1           16.    The apparatus of claim 15, further comprising a triggering  
2 mechanism configured to trigger a mismatch alert.

1           17.    The apparatus of claim 16, wherein the mismatch alert throws an  
2 error.

1           18.    The apparatus of claim 16, wherein the mismatch alert is sent to a  
2 database administrator and the query is processed.

1           19.    The apparatus of claim 16, wherein the mismatch alert is sent to a  
2 requesting application, thereby allowing the requesting application to take action.

1           20.    The apparatus of claim 15, further comprising a recording  
2 mechanism configured to record signatures of valid transactions during a system  
3 initialization operation.

1           21.    The apparatus of claim 15, further comprising an adding  
2 mechanism configured to allow a database administrator to add the signature to  
3 the signature cache if the signature generates a mismatch alert and if the query is a  
4 valid query.